Mexican data for July, 1900.

Stations.	Altitude.	Mean barometer.	Temperature. Max.	Min.	Mean.	Relative humidity.	Precipitation.	Prevailing direction. Wind.	Cloud.
	Feet.	*Inch.*	° *F.*	° *F.*	° *F.*	%	*Inch.*		
Durango (Seminario)	6,243	24.03	93.2	50.0	69.6	63	9.78	wsw.	e.
Leon (Guanajuato)...	5,934	24.27	87.1	55.4	69.3	68	6.79	sse.	se.
Mazatlan.....	25	29.84	90.7	74.8	83.5	77	10.88	nw.	ne.
Mexico (Obs. Cent.)..	7,472	23.04	81.3	51.3	62.2	71	5.79	n.	ne.
Morelia (Seminario)..	6,401	23.95	77.4	53.6	64.2	81	5.63	sw.	e.
Puebla (Col. Cat.)....	7,112	23.36	79.7	49.1	65.5	77	9.03	e.	ne.
Saltillo (Col. S. Juan).	5,399	24.77	87.8	59.0	71.6	71	5.70	n.	se.
Zacatetas	8,015	22.49	80.6	47 8	62.6	60	11.69	e.	
Zapotlan (Sem.).....	5,078	25.07	82.0	61.2	69.4	76	5.20	sse.	se.

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made partly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.

Meteorological observations at Honolulu, July, 1900.

The station is at 21° 18′ N., 157° 50′ W.

Hawaiian standard time is $10^h\ 30^m$ slow of Greenwich time. Honolulu local mean time is $10^h\ 31^m$ slow of Greenwich.

Pressure is corrected for temperature and reduced to sea level, and the gravity correction, —0.06, has been applied.

The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual, in which case the extremes are given. The scale of wind force is 0 to 12, or Beaufort scale. Two directions of wind, or values of wind force or amounts of cloudiness, connected by a dash, indicate change from one to the other.

The rainfall for twenty-four hours is measured at 9 a. m. local or 7:31 p. m. (not 1 p. m.), Greenwich time, on the respective dates.

The rain gage, 8 inches in diameter, is 1 foot above ground. Thermometer, 9 feet above ground. Ground is 43 feet, and the barometer 50 feet above sea level.

Date.	Pressure at sea level.	Temperature. Dry bulb.	Wet bulb.	During twenty-four hours preceding 1 p. m., Greenwich time, or 2:29 a. m., Honolulu time. Temperature. Maximum.	Minimum.	Means. Dew-point.	Relative humidity.	Wind. Prevailing direction.	Force.	Average cloudiness.	Sea-level pressures. Maximum.	Minimum.	Total rainfall at 9 a. m., local time.
	*	†	†			‡	‡		§				
1.....	30.00	77	69.5	85	76	.....	.....	ne.	4-5	5	30.02	29.96	0.01
2.....	30 00	76	69.5	86	76	65.7	62	ne.	4-2	5	30.04	29.97	0.03
3.....	29.97	73	69.5	85	75	66.7	66	ene.	5-1	4-8	30.01	29.96	0.13
4.....	29.97	72	69	84	71	68.5	75	ne.	3	3-8	30.01	29.94	0.07
5.....	29.98	75	69	85	75	69.5	79	ene.	3	5	30.02	29.95	0.15
6.....	29.96	74	69	85	71	67.3	69	ne.	3	6	30.02	29.94	0.08
7.....	29.93	76	69	85	70	67.3	69	ne-nne.	4	4	30.00	29.94	0.00
8.....	30.00	77	69	86	75	66.3	65	nne.	3	3	30.00	29.96	0.01
9.....	30.03	76	68	85	76	66.5	66	ene.	4	3	30.04	29.99	0.00
10.....	29.94	72	70	86	75	65.5	64	nne.	3	3-1	30.05	29.95	0.41
11.....	29.91	75	70	79	71	69.0	79	ne.	3	8-4	29.99	29.91	0.19
12.....	29.95	74	67.5	84	72	66.7	69	ne.	4	3	29.98	29.93	0.04
13.....	29.96	75	69	85	73	66.0	66	ne.	2	5	29.99	29.94	0.06
14.....	29.93	75	68.5	84	72	67.7	72	ne.	3-0	3-8	29.97	29.92	0.14
15.....	29.91	72	69	85	70	67.3	69	ne.	1	4	29.97	29.93	0.01
16.....	29.90	76	69.5	86	72	67.5	71	ne.	1	3	29.97	29.87	0.01
17.....	29.92	75	68	86	74	65.7	63	ne.	1-3	2	29.95	29.88	0.00
18.....	29.97	75	68.5	86	74	66.5	60	ne.	1-3	2	30.00	29.92	0.09
19.....	29.97	77	71	86	72	69.0	65	ne.	3	3-3	30.06	29.97	0.05
20.....	29.93	72	68	86	76	67.7	60	ne.	3	5-1	30.01	29.92	0.02
21.....	29.86	70	66	86	79	65.0	68	nne.	3-4	1	29.97	29.86	0.01
22.....	29.90	73	68.5	87	68	65.7	66	nne.	2	2	29.93	29.86	0.00
23.....	29.92	77	69	86	72	64.5	62	ne.	3	2	29.97	29.90	0.00
24.....	39.95	77	69	86	76	66.0	63	ne.	4	4	29.99	29.93	0.00
25.....	29.94	76	69.5	86	76	65.5	62	nne.	4	2	29.98	29.90	0.04
26.....	29.93	73	68.5	85	74	65.3	63	ne.	4	3	29.95	29.89	0.36
27.....	29.93	76	69.5	83	70	68.0	75	ne.	4-0	5	29.97	29.91	0.15
28.....	29.93	76	71	87	72	67.0	66	ne.	3-0	2	29.99	29.91	0.00
29.....	29.94	77	73	88	75	69.7	72	ene.	3	4-6	30.00	29.94	0.16
30.....	29.94	76	72.5	87	75	70.5	72	ne.	3	4-2	29.98	29.92	0.04
31.....	29.94	75	71	86	76	69.7	73	nne.	4	2	29.98	29.91	0.33
Sums..	.....	.....	.....	.....	.. ..	.....	.....	.....	.....	.....	.....	.....	2.59
Means.	29.947	74.9	69.3	85.3	73.0	66.9	67.5	.....	2.9	3.7	29.994	29.925	....
Departure..	—.035	.....	.....	.....	.....	+3.6	+0.8	.....	.....	—0.3	.....	.....	+0.79

Mean temperature for July, 1900 (6+2+9) ÷3=78.5°; normal is 77.2°. Mean pressure for July (9+3)÷2 is 29.960; normal is 29.995.

*This pressure is as recorded at 1 p. m., Greenwich time. †These temperatures are observed at 6 a. m., local, or 4:31 p. m., Greenwich time. ‡These values are the means of (6+9+2+9)÷4. §Beaufort scale.

FOG STUDIES ON MOUNT TAMALPAIS.

By ALEXANDER G. MCADIE, Forecast Official.

If we lived on a planet without an atmosphere, such as our own satellite, and were suddenly carried to the earth and required to specify what, of all the wonderful things seen, most excited our interest, we would be forced, in perfect fairness, to answer "the floating reservoirs—the clouds." Because we do live on a planet that has an atmosphere, and daily see the never-ending procession of aerial forms marching across the sky we are unable to rightly marvel at the clouds, though we may rightly admire the beauty of the cloudscape. We fail to realize, too, that we are living at the bottom of a sea—a sea of air and not of water. This is a deeper sea than that of the sailing ships, and soundings exceeding 5 miles have recently been made in it. Twilight indicates a sensible atmosphere of perhaps 40 miles, and some measurements of meteoric phenomena would extend the envelope of air to 100 miles; but for all practical purposes the sea of air with which man is concerned may be considered as 5 miles deep. Even so, it is an ocean more vast than the broad Pacific, the ridged Atlantic, the Arctic, the Antarctic, and all the waters of the globe combined. At the bottom of this sea men walk about unconscious of a pressure of nearly one ton on each square foot of their bodies. This pressure is not constant but varies from hour to hour and day by day, sometimes as much as one hundred pounds. Far above move those strangely plastic water carriers, the clouds, and it may be that a longing comes for the wings of a bird that we, too, might journey in the realms of the cloud. But like Prometheus bound to his rock, man seems chained below and wears out his existence at the bottom of the sea of air. Deep sea fishes are structurally adapted to withstand the enormous pressure of the superincumbent layers of water; and man, a deep air animal, is also suited for his habitat. When he wishes to change from one level to another he can laboriously climb the side of some high mountain, realizing as he toils upward that his respiratory system is adapted to low levels. With less physical effort he can rise in an artificial way by balloons, and range through levels with pressure varying from 15 to 5 pounds per square inch. Unlike the birds, however, he can not, unassisted, sound the air. He is outclassed by the eagle. Even the lazy buzzard circling slowly across the sky, soaring without effort over hill and valley, watching with sharp eye the slow-moving animals on earth, has the advantage of man.

The sea of air has even more moods than the sea of water. In the atmosphere the great disturbances are at the bottom while the upper strata are comparatively tranquil. What is called weather is for the most part a displacement of normal strata. Deflection, dipping, or underflowing of some customary air stratum by another, means a marked change in man's environment and naturally he comments freely thereupon.

Few of us realize that the atmosphere is never absolutely at rest. On the calmest day and in the most sheltered nook the air, seemingly still, will be found on closer examination to be in motion. Difference of temperature causes convectional currents, or what we may call gross motion. There are other motions, of which the layman can know but little. The president of the British Association for the Advancement of Science stated in the presidential address for 1898 that—

> The total energy of both the translational and internal motions of the molecules locked up in quiescent air at ordinary pressure and temperature is about 140,000 foot-pounds in each cubic yard of air. Accordingly the quiet air within a room 12 feet high, 18 feet wide, and 22 feet long, contains energy enough to propel a one-horse-power engine for more than twelve hours.

As seaweeds betray the set of the ocean currents, so do